UNITED STATES DEPARTMENT OF COMMER
National Oceanic and Atmospheric Administratic
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

October 29, 2004

MEMORANDUM FOR: William T. Hogarth, Ph.D.
Assistant Administrator
for Fisheries

FROM: for James W. Balsiger
Administrator, Alaska Region

SUBJECT: Request for Secretarial Determination of a Commercial Fishery Failure Due to a Fishery Resource Disaster - ISSUES ADVISORY

This memorandum is intended to advise you of issues regarding the subject action.

In a letter to Secretary of Commerce Evans (Secretary) dated September 16, 2003, the Mayor and City Manager of Saint Paul formally requested the Secretary to declare a continuation of a fishery resource disaster under section 312(a) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The letter supports the opinion that a commercial fishery failure continued during 2003, due to a fishery resource disaster in the snow crab fishery. The fishery resource is snow crab (Chionoecetes opilio) in the eastern Bering Sea.

A finding that this resource continues to experience a disaster, which has led to a commercial fishery failure, would provide a basis for the Secretary to provide funds appropriated for fisheries disaster relief under Section 312(a) of the Magnuson-Stevens Act to the State of Alaska (State) and the affected communities.

If disaster relief funding is appropriated, we will continue to cooperate with the State and the affected coastal communities to assess the economic and social effects of the commercial fishery failure, to support any activity that would restore the fishery or prevent a similar failure, and assist the affected fishing communities. This action is not expected to be CONTROVERSIAL unless it is not taken.

Did a commercial fishery failure occur due to a fishery resource disaster?

According to the letter from the Mayor of Saint Paul, the community of Saint Paul had suffered a loss of 82% to 90% of its revenues due to the snow crab collapse. Saint Paul receives a large portion ~~(between 10% and 85%)~~ of their income from snow crab through fish tax, revenue and employment from crab processors, and secondary income from harbor usage, sale of goods and services, transportation, and fuel tax. This money is used for basic services, including electricity, operating budgets, education, and health care. Please refer to the letter to Secretary of Commerce Evans (Secretary) dated September 16, 2003, from the Mayor and City Manager of Saint Paul for a detailed assessment of the economic impacts to Saint Paul of the fishery failure.

Total revenues from the snow crab fishery continue to be drastically below the 1999 estimated revenues of $162 million and represent a significant drop in revenues from the previous 10 years. Total fishery revenues from the 2004 snow crab fishery are estimated to be $45 million. Revenues from the 2003 snow crab fishery are estimated $46.98 million and approximately $40 million in 2002. This compares to the estimated snow crab fishery revenues of approximately $35.9 million in 2001, and approximately $55 million in 2000. The total value of the snow crab fishery averaged $141 million between 1989-1999, with the highest total value of $192.4 million in 1994, and the lowest total value of $82.6 million in 1996.

Need for action.

The Alaska Region recognizes that the fishery resource failure, which occurred in 2000, 2001, and 2002, continued to manifest itself during the 2003 and 2004 snow crab fishery and may continue for an undetermined period of time. While the collapse of the snow crab biomass was anticipated, the effect of this collapse continues to bring economic dislocation to Saint Paul and possibly other communities. The Alaska Region also recognizes that the Crab Rationalization Program, which will be in place for the 2006 snow crab fishery, will mitigate many of the negative economic consequences of the low snow crab stock abundance on St. Paul. A determination of commercial fishery failure would pave the way for interim economic assistance to be provided to the community of Saint Paul and possibly other coastal communities.

BACKGROUND

The request from Saint Paul stems from three previous commercial fishery failures which we recognized as fishery resource disasters in 2000, 2001, and 2002. On May 11, 2000, we determined that the Bering Sea snow crab fishery had suffered a commercial fishery failure due to natural and environmental factors (see decision memorandum from F/AK to F dated April 5, 2000). This determination paved the way for Congress to make available ten million dollars for research, management and direct economic assistance. The snow crab stock remained depressed which we recognized in June 2001 (see issues advisory from F/AK to F dated June 25, 2001). On November 29, 2001, we determined that the snow crab fishery continued to suffer a commercial fisheries failure. On October 22, 2002, we again determined that the snow crab fishery continued to suffer a commercial fisheries failure. However, no funds were appropriated for the 2001 or the 2002 determination of a commercial fishery failure.

Section 312(a) of the Magnuson-Stevens Act provides the Secretary with authority to declare a fishery resource disaster. Section 312(a) states that the Secretary, at the Secretary's discretion or at the request of the Governor of an affected State or a fishing community, shall determine whether a commercial fishery failure occurred as a result of a fishery resource disaster. Before making any disaster relief funds available under the authority of Section 312(a), the Secretary must determine that:

- A fishery resource disaster resulted from natural causes, man-made causes beyond the control of fishery managers, or undetermined causes, and if so,
- A commercial fishery failure occurred due to the fishery resource disaster.

The Secretary is authorized to make funds available provided that the activity(ies) proposed to address a commercial fishery failure is (are) appropriate, and that any activity proposed will not expand the commercial fishery failure.

ELEMENTS OF THE PROPOSED ACTION

Did a fishery resource disaster occur?

A precipitous decline in the Bering Sea snow crab abundance has occurred in the eastern Bering Sea. The NMFS 1999 summer trawl survey of the Bering Sea indicated the biomass of both male and female snow crabs declined significantly from levels observed during the 1998 survey. The 1999 estimate of male crabs 4 inches (industry-standard minimum size) and larger dropped 63% from the prior year and all other components of the stock also declined significantly. Collapse of the Bering Sea snow crab stocks, as evidenced by severe lack of recruitment into the population, precipitated a guideline harvest level reduction of over 85% in the snow crab fishery in the year 2000. The 2000 guideline harvest level (GHL) for snow crab was established at 28.5 million pounds. This level represented a significant reduction from the 1999 GHL of 196 million pounds. Owing to the low biomass of mature crabs, NMFS classified the snow crab stock as

"overfished" in 1999. In 2001, the Secretary approved a rebuilding plan for this stock, which greatly reduced the harvest rate to promote stock rebuilding.

The NMFS summer trawl surveys in 2000, 2001, 2002, 2003 and 2004 continued to show low stock levels for all size classes of snow crab. The 2004 spawning biomass increased 12 percent from 2003 to 343.7 million pounds. The snow crab spawning biomass in 2003 (306.2 million pounds) was below the minimum stock size threshold for this stock and comparable to the spawning biomass estimated in 2002 (313.3 million pounds). The NMFS summer trawl survey in 2002 and 2003 indicated a further reduction in snow crab stocks after showing a slight increase in 2001. The reproductive population estimate in 2001 slightly exceeded the "overfished" level but fell below this level again in 2002.

Due to this low abundance, the 2001 fishery had a reduced GHL of 27.3 million pounds. The 2002 fishery had a GHL of 30.8 million pounds. The 2003 fishery had a GHL of 25.6 million pounds. The GHL for the 2004 fishery was 20.8 million pounds, lower than the GHL in 2001, 2002, or 2003. The recommended GHL for the 2005 fishery is 20.9 million pounds. This is a continuation of the low harvest levels from 2000 to 2005 and remains a drastic reduction from the 1999 GHL of 196 million pounds.

What caused the fishery resource disaster?

Insufficient evidence exists to determine the cause of the snow crab stock crash. However, the evidence we have suggests the causes are natural. Aside from the NMFS annual trawl survey, little research has been conducted to understand the population dynamics of snow crab.

Approximately three million dollars was provided for research in response to the 2000 decline in snow crab abundance (two million for Bering Sea ecosystem research including one million to the State of Alaska to develop a cooperative research plan to restore the crab fishery).

Determining the cause or causes of the snow crab collapse with less than four years of research and analysis is unrealistic. Therefore, factors affecting snow crab abundance are not understood.

Temperature is likely to be very important to snow crab population dynamics, but a simple one-to-one relationship is unlikely. Warmer temperatures hasten growth, but they likely have a negative effect on reproduction as faster growing males have fewer mating opportunities before attaining harvestable size. On the other hand, crab larvae feed primarily on copepod nauplii, which we think are favored by warmer water in the Bering Sea. Other critical life stages are sensitive to very specific temperatures and depths. Thus, survival may be favored by cooler, warmer or intermediate temperatures depending on what life stage one considers.

Beyond temperature, we suspect that advection of larvae by ocean currents to the nursery areas and cannibalism within limited nursery areas from older crab cohorts are contributors to recruitment success or failures.